

15¢

\$5.50 A YEAR

June 13, 1953

VOL. 63, NO. 24 PAGES 357-372

SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Emerging Time

See Page 370

A SCIENCE SERVICE PUBLICATION

CYTOLOGY

Living Nuclei Transplanted

For the first time, living nuclei in cells higher than ameba are transplanted. Aim is to understand which parts are responsible for various functions.

► **TRANSPLANTATION** OF living nuclei from one cell to another has been achieved for the first time in cells from animals higher in the scale of life than the single-celled ameba.

As a result, scientists hope to find what part of the cell is responsible for its muscular, nervous or other specialized function and why cancer cells are unspecialized.

The transplantation feat, achieved with frog eggs, was accomplished by Drs. Robert Briggs and Thomas J. King at the Institute for Cancer Research, Philadelphia. Their work was supported by the National Cancer Institute of the Public Health Service and the American Cancer Society.

The nucleus of a living cell is a delicate structure, easily killed by mechanical damage or by exposure to artificial medium. For this reason many scientists believed it would be impossible to transfer the nucleus from one cell to another.

The Philadelphia scientists found they could protect the nucleus by sucking up the single whole cell into a slender glass tube a few thousandths of an inch in diameter. The nucleus was thus protected by its own cytoplasm until the moment it was injected into the cytoplasm of the receptor cell.

The reconstructed cells divided normally. The scientists now have under way crucial experiments designed to determine whether the specializing or differentiating structures of cells are in the cytoplasm around the nucleus or in the nucleus itself.

They have transplanted nuclei from developing nerve cells into cells which have had their own nuclei removed. If these cells develop into nervous tissue exclusively, it will indicate that structures controlling cell specialization lie within the nucleus. If they do not, the guess is that the genesis of nervous tissue lies in the nerve cell cytoplasm.

Science News Letter, June 13, 1953

MEDICINE

Aspirin for Arthritis

► **WHEN RHEUMATOID** arthritis first strikes, aspirin helps the patient as much as the famous adrenal gland hormone, cortisone.

Results of a strictly controlled trial of the two drugs showing this were reported to the American Rheumatism Association meeting in New York by Drs. A. Bradford Hill and J. H. Kellgren of London and Manchester, England.

Their study covered 14 patients under age 17, and 61 patients from 17 to 59 years old. Cortisone was given to eight children and 30 of the older group. The others got aspirin. The patients had had their arthritis for from three to nine months. They were not too severely crippled but each had at least four joints affected.

The medicines were given for 12 weeks with one week off after each 12 weeks of treatment.

The results in the various groups were assessed on the return of general functional capacity, elimination of tenderness in the inflamed joints, restoration of the range of movement, return of strength in the grip and improved manual dexterity.

Laboratory observations were also made of the blood sedimentation rate and the red blood cell level, two gauges useful in observing the extent of the rheumatoid process.

"In both the aspirin and the cortisone groups," Dr. Hill said, "on the average, significant improvement was revealed in most of the measured features. Both groups underwent a relapse during the one week they were off treatment."

"The cortisone group showed a rather greater improvement in the red cell level and in the blood sedimentation rate but in other respects the two treatment groups did not, at this first stage, differ materially."

Science News Letter, June 13, 1953

BOTANY

Biggest, Smallest Things In Universe Appear Same

► **SOME OF** the biggest and smallest things in the universe look pretty much alike.

The late Dr. O. L. Sponsler and Dr. Jean Bath of the University of California at Los Angeles division of botany have reported that electron micrographs of a collection of protoplasmic bodies reveal striking likenesses to those of planetary systems taken through powerful astronomic telescopes.

Unpublished work of Dr. Sponsler, a leading investigator in protoplasm until his death, suggests that larger bodies in living

protoplasm may attract smaller ones. Thus may be formed protoplasmic systems somewhat similar to planetary systems.

Particle sizes range all the way from the microscopically visible to very minute ones at the molecular-micellar borderline. On close scrutiny the very minute particles, which are probably highly organized mechanisms or enzyme complexes, appear to have internal structure.

It appears possible, the investigators report, actually to see the outline of large protein molecules within the very minute particles.

Science News Letter, June 13, 1953

ENDOCRINOLOGY

Find New Adrenal Stimulating Hormone

► **DISCOVERY OF** a hormone that stimulates the adrenal gland, producer of cortisone, but which is distinct from the famous adrenal stimulator, ACTH, was announced by Drs. G. W. Liddle, A. P. Rinfret and P. H. Forsham and Mr. J. Richard of the University of California School of Medicine, San Francisco, and Stanford University, Palo Alto, Calif., at the meeting of The Endocrine Society in New York.

The new hormone is called AGF. It was obtained from the pituitary glands of hogs and horses. ACTH, used as cortisone in arthritis treatment, also comes from the pituitary gland.

Tests of AGF on humans showed it had a greater effect on the adrenal glands than either ACTH or somatotrophic hormone from the pituitary.

Science News Letter, June 13, 1953

CHEMISTRY

Life Chemicals Produced In Young Earth Atmosphere

► **SOME OF** the chemical compounds necessary to living things have been produced in a miniature atmosphere such as the earth must have had in its primitive days when life first dawned on the planet.

In apparatus at the University of Chicago chemical laboratories methane, ammonia, water and hydrogen were circulated past an electric discharge, duplicating the play of forces upon the matter of the new-born earth.

Dr. Stanley L. Miller, a National Science Foundation fellow, performed the experiment at the suggestion of Dr. Harold C. Urey, Nobelist who has been investigating the origin of life on the earth.

By chromatographic analysis, Dr. Miller found that glycine and two other amino acids were identified and some others were indicated. This is what might have happened in the history of the earth, and the experiments are being continued.

Science News Letter, June 13, 1953

PHYSICS

Plutonium Needs Filled?

Atomic Energy Commission's report on commercial nuclear power development studies hints plutonium requirements will be met within a short period.

► **SECRECY WRAPS** were removed from new steps toward man's mastery of atomic fuels for production of industrial power when the Atomic Energy Commission issued a report as revealing about nuclear reactors as the famous Smyth report of 1945 was about atomic bombs.

Four groups have made independent studies to evaluate practical power from atomic reactors as seen by engineers and technicians trained in more conventional ways of producing heat and electricity. Their studies are contained in this nuclear power report.

Production of plutonium for military use by the power reactors is contemplated, with the statement that plutonium may not be required by the military after a short period, perhaps five years.

This raises the question whether H-bombs will supersede A-bombs powered by plutonium, or whether enough plutonium will be stockpiled in five years to make all the atomic bombs the military expect to need.

"How long plutonium will be required, and what should be done with the reactor at the cessation of the military demand for plutonium" has a bearing on plant cost and power rates. The question is raised in the part of the report prepared by Monsanto Chemical Co. and Union Electric Co. under the title, 'Plutonium-Power Reactor Feasibility Study.'

A novel kind of reactor using fluid fuel which, in addition to producing power, would breed more fuel than it uses is forecast in the part of the study made by Dow Chemical Co. and Detroit Edison Co., titled "Study of Materials and Power Producing Reactors."

"The theoretical reactor that would incorporate all the most desirable ultimate objectives," this report states, "is a fast breeder with a true fluid fuel. The core of the reactor would be all molten metal. One primary consideration would be safety." Such a reactor for use on shipboard or in a congested area is considered.

Atomic power to make up for the coming shortage of water power capable of development is emphasized in the section of the report prepared by Pacific Gas and Electric Co. and Bechtel Corporation. Their plan calls for natural uranium as fuel, heavy water as moderator and ordinary, or light, water for cooling the reactor.

Closest to present-day reactors is the one planned by Commonwealth Edison Co. and the Public Service Co. of Northern Illinois.

Their engineers figured on a helium-gas-cooled reactor using graphite as moderator.

The possibility of getting power as a by-product of a furnace which produces more fuel than it consumes is only one of the unique features of an atomic power plant.

Although enormous amounts of energy can be gotten from uranium as compared with coal on a weight-for-weight basis, the temperature at which an atomic power plant has to be operated is relatively low. Above 1,000 degrees Fahrenheit uranium changes into its so-called beta phase, which is undesirable for its use as fissionable material.

There is also the chance that, if the atomic pile gets too hot, the whole structure will melt and crumble away. The resulting mess would be no small matter, since nearly 2,000 tons of graphite are needed for the moderator of the kind of pile being considered in this report.

Cooling materials to be circulated through the pile, in order to make use of the heat developed, could be helium gas, ordinary water or liquid metals. Liquid sodium is the preferred coolant in three of the industry reports, but its use brings up many unsolved problems as to whether it will corrode the pipes and how the danger of a leak can be prevented. If sodium comes in contact with water, a serious fire hazard occurs.

Unlike shoveling lumps of coal into a furnace, loading an atomic pile is done at present by inserting, one at a time, carefully machined pieces of uranium metal, each "canned" in an aluminum case. Ways to avoid this costly processing are suggested in the present report, but have not yet been proved in practice. Liquid fuel or fluidized fuel, if it can be made to react satisfactorily, would materially reduce cost.

Similarly, ways to remove the fission products from the atomic pile without shutting it down are needed. Storage of these products until their radioactivity dies away to the level of relatively safe handling is an essential part of running a nuclear reactor. All handling of fission products has to be done by remote control, and all regulation and repair of the machinery that handles them must be carried out also without letting people come within the danger zone of deadly radiations.

Science News Letter, June 13, 1953



200-INCH EYES MOON—*Photograph of moon, taken with the 200-inch Hale Telescope at the Palomar Observatory, shows a flat region covered with many small craters. The large crater at lower right is Copernicus, one of the best known features of the moon. The sun is illuminating the moon from the left in this photo.*

MEDICINE

Hint New Kind of Insulin

► A NEW kind of insulin that would be a boon to those diabetes patients who now must take insulin twice a day to control the unstable form of the disease seems in the offing.

Studies of two new types of long-acting insulins suggest this. The studies were made by Dr. Joseph L. Izzo, with the assistance of Miss Alfreda M. Gabiga and Miss Joanne Hoffmaster of the University of Rochester (N. Y.) School of Medicine. They were reported at the meeting of the American Diabetes Association in New York.

One of the new preparations is called insulin 2958. It is a long acting zinc insulin preparation. The other is called special insulin 190-4B-111. It is a clear preparation of a new chemical modification of insulin without basic protein. These two were compared with the standard long-acting insulin now used, called NPH insulin, which contains both zinc and the protein, protamine.

An insulin and zinc preparation without protein, Dr. Izzo pointed out, would have the following advantages: 1. possibly more uniform and consistent absorption from the depot under the skin; 2. fewer hypersensitivity reactions; and 3. greater flexibility in adjusting the best timing.

Insulin 190-4B-111 is considerably faster and insulin 2958 definitely slower than NPH insulin in timing, Dr. Izzo found. Insulin 190-4B-111 tended to produce low levels of blood sugar in the middle of the day and high levels at night and in the morning. Insulin 2958 had the opposite effect, high levels during the day and low levels at night and morning.

Although neither of these insulins seems to be the final answer to the problem of unstable diabetes, the studies suggest that preparations of this type may be found which will be more suitable.

Science News Letter, June 13, 1953

ENGINEERING

Practical Heat From Earth

► NEW INFORMATION which may make the earth-source heat pump practical and popular has been discovered by researchers at Texas A. and M. College, College Station, Texas.

The major failing of heat pump installations in the past has been lack of accurate information as to proper lengths for the buried coil portion of the pump, with regard to soil types and average temperatures.

Now, through use of a formula developed by Donald M. Vestal, Jr., working with the Texas Engineering Experiment Station, the exact length of the buried coil can be figured out in advance through use of available information.

Development of the formula, however, required three years of continuous research. It involved constant checks on soil temperature and moisture content, and finally the development of a new measuring method—the heat-meter method.

This method was worked out by Mr. Vestal and his four-man staff after tests showed that two recognized unsteady-state methods were inadequate.

In the new method, "heat meters" composed of bismuth are used to measure the quantity of heat energy flowing through a test specimen of soil at steady-state conditions. At the same time the steady-state thermal gradient within the specimen is checked by means of embedded thermocouples.

Unknown thermal conductivity at various points within the specimen are then computed on the basis of the rate of flow of heat energy as shown by the "meters."

Ten main soil types, some from other regions, were tested in this manner and classified. They are representative of the soil types likely to be found at buried coil sites.

Mr. Vestal's formula which allows accurate calculation of coil length for any given set of conditions, consists of dividing the time rate of heat transfer between coil and soil by the difference between coil temperature and average natural seasonal temperatures of soil at coil depth, times soil thermal conductivity, times a constant that depends upon whether heating or cooling is wanted, and upon such other factors as coil spacing and the intermittency of operation.

Science News Letter, June 13, 1953

TECHNOLOGY

Robot Keeps Reactor From Blowing Its Top

► A ROBOT safety system which will automatically keep an atomic pile from blowing its top has been developed.

It is a packaged automatic control system to monitor the operation of the piles in which nuclear fission takes place. A series of electronic instruments control the beginning of nuclear reaction and, once in operation, regulate the rate of power generation at predetermined levels.

In A-bombs, nuclear fission is uncontrolled and happens in an instant's time. In a nuclear pile, it is controlled and the power resulting from the splitting of atoms is per-

mitted only to dribble off in required amounts. Rods of boron steel control the activity of neutrons. The robot system will keep pushing these rods in and out so that the precise amount of control desired is obtained.

The system includes a multiplicity of electronic instruments, amplifiers, servo-amplifiers, recorders, controllers and servomotors. It was developed by the industrial division of the Minneapolis-Honeywell Regulator Company. The company says this is the first nuclear pile control system all in one package.

Science News Letter, June 13, 1953

SCIENCE NEWS LETTER

VOL. 63

JUNE 13, 1953

NO. 24

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N. St., N. W., Washington 6, D. C., NORTH 7-2255. Edited by WATSON DAVIS.

Subscription rates: 1 yr., \$5.50; 2 yrs., \$10.00; 3 yrs., \$14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Copyright, 1953, by Science Service, Inc. Reproduction of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service. Science Service also publishes CHEMISTRY (monthly) and THINGS OF Science (monthly).

Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C., under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Sec. 3440, P. L. and R., 1948 Edition, paragraph (d) (act of February 28, 1925; 39 U. S. Code 283), authorized February 28, 1950. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., Pennsylvania 6-5566, and 360 N. Michigan Ave., Chicago, State 2-4822.

SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees—Nominated by the American Association for the Advancement of Science: Ferdinand Payne, National Science Foundation; Karl Lark-Horowitz, Purdue University; Kirtley F. Mather, Harvard University. Nominated by the National Academy of Sciences: Harlow Shapley, Harvard College Observatory; R. A. Millikan, California Institute of Technology; Homer W. Smith, New York University. Nominated by the National Research Council: Leonard Carmichael, Smithsonian Institution; Ross G. Harrison, Yale University; Duane Roller, Hughes Aircraft Co. Nominated by the Journalistic Profession: A. H. Kirchhofer, Buffalo Evening News; Neil H. Swanson, Baltimore Sun Papers; O. W. Riegel, Lee Memorial Journalism Foundation. Nominated by the E. W. Scripps Estate: John T. O'Rourke, Washington Daily News; Charles E. Scripps, E. W. Scripps Trust; Edward J. Meeman, Memphis Press-Scimitar.

Officers—President: Harlow Shapley; Vice President and Chairman of Executive Committee: Leonard Carmichael; Treasurer: O. W. Riegel; Secretary: Watson Davis.

Staff—Director: Watson Davis. Writers: Jane Stafford, Marjorie Van de Water, Ann Ewing, Wadsworth Likely, Allen Long, Horace Loftin. Science Clubs of America: Joseph H. Kraus, Margaret E. Patterson. Photography: Fremont Davis. Sales and Advertising: Hallie Jenkins. Production: Priscilla Howe. Interlingua Division in New York: Alexander Gode, Hugh E. Blair, 80 E. 11th St., GRamercy 3-5410.



SEA-URCHIN CHEMISTRY—Dr. Daniel Mazia of the University of California, is studying the enzyme chemistry of chromosomes to try to find out the role of the nucleus in cell chemistry. Here he is holding a sea-urchin, the animal he uses in his project, over a beaker that will receive the eggs, the cells of which he studies.

ENTOMOLOGY

Use Bubble for Gill

► CAN AN adult insect breathe under water? It could if it had the equivalent of a fish's gill, so that it could pick up oxygen from the water.

At least one beetle, a species from Africa, does seem to have what amounts to a physical gill, allowing it to stay under water almost constantly, reports Dr. George O. Stride of the University College of the Gold Coast, Achimota, Gold Coast, Africa.

The beetle, *Potamodytes tuberosus*, inhabits swift-flowing streams and, like many other water-dwelling insects, envelopes itself in an air bubble from which it gets a supply of oxygen while under water.

However, the unique thing noted by Dr. Stride in a report to *Nature* (May 16) is that there appears to be a constant replacement of oxygen from the water, through the surface of the bubble, into the bubble itself—at least with this beetle. Fishes' gills similarly remove oxygen from water.

It is commonly believed by entomologists

that when the oxygen of a bubble is exhausted, an aquatic insect would have to come to the surface to pick up a new oxygen filled bubble.

Dr. Stride said fast-flowing water was necessary for the oxygen exchange to take place through the respiratory bubble. When a beetle was kept in still water thoroughly saturated with oxygen, the respiratory bubble gradually disappeared and died.

But when a current was set up in the water, the respiratory bubble kept its full size, and in one case increased considerably in size.

Adult insects possess neither gills as fishes do, nor lungs as many other land animals do. Instead they breathe through a series of fine, complicated tubes, called tracheae, that run to all parts of the body, much like our blood capillaries. Air enters the tracheae through a series of openings that lie along the insects' body wall.

• RADIO

Saturday, June 20, 1953, 3:15-3:30 p.m. EDT
"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Dr. Dan Gordon, assistant professor of ophthalmology of the Cornell University Medical College and assistant attending surgeon at the New York Hospital, will discuss "More Health for Your Eyes."

ENDOCRINOLOGY

Cortisone Counters Blood Albumin Effect

► WHEN SERUM albumin from blood is injected into a vein, its bone and tissue building effect is blocked by giving cortisone.

This albumin blocking effect of cortisone was reported by Drs. Philip H. Henneman and Fuller Albright and Miss Eleanor F. Dempsey of Massachusetts General Hospital, Boston, at the meeting of The Endocrine Society in New York.

Albumin injected into the veins, the scientists explained, has "three possible fates:" to be "burned," to be "converted" into body tissues including bones, and to remain "unchanged."

In their studies, cortisone "almost totally blocked" the conversion when albumin was given at the same time, and "burning" was decreased.

Science News Letter, June 13, 1953

MEDICINE

Do Not Fear Work, Not Cause of Heart Failure

► AMERICAN BUSINESS executives are "afraid to live for fear of dying," Dr. Theodore G. Klumpp, president of Winthrop-Sterns, Inc., New York, pharmaceutical manufacturer, charged at the meeting of the American Association of Cereal Chemists in Buffalo, N. Y.

They are victims of the "false" notion that hard work is the cause of heart failure. Consequently, Dr. Klumpp said, they "work with mental brakes set against their work and in mortal terror of a heart attack."

He gave lack of physical exercise and over-eating, not hard work, as the major causes of heart attacks among business executives in the United States. Heart attacks, he said, are the climax of a gradual process of hardening of the arteries and are not brought on by violent physical activity on a golf course or by intense mental strain. He cited studies showing that half such deaths occur during sleep and only two percent of heart attacks during severe exertion.

"Throughout the world where sustained physical activity during a lifetime is the rule and food is not abundant, coronary heart disease does not appear to be a problem," Dr. Klumpp reported.

Science News Letter, June 13, 1953

MEDICINE

Predisposition to Cancer

Hormone production of mother's glands during pregnancy may cause tendency to certain types of cancer, research with tadpoles shows.

► A PREDISPOSITION to some kinds of cancers may be caused by the kind of hormone production of the mother's glands during pregnancy.

Evidence for this comes from research by Dr. Emil Witschi of the State University of Iowa. Dr. Witschi's findings were announced by the American Cancer Society, which supports his research, as follows:

When pregnant animals are given the female hormone estrogen, their offspring may develop drastically altered hormone production patterns.

Most of Dr. Witschi's basic research was done on tadpoles. He finds that similar hormonal responses exist in salamanders, birds and marsupials (opossum), while the reactions in frog larvae are closer to those of mammals.

This research, designed to trace the evolutionary genesis of sex, may explain the "adrenogenital syndrome" of humans—the virilism of young males and females. In this condition the adrenal glands become enlarged and produce prodigious amounts of male hormone.

Young women, so affected, grow beards, develop deep voices and muscular figures, lack breast development and have prominent male-like secondary sex organ structures. Boys barely out of infancy have the voices and sex development of men.

Scientists elsewhere have found that this condition can be controlled satisfactorily with small daily doses of the adrenocortical hormone, cortisone. This puts the adrenals at rest and stops the excessive production of adrenal male hormone, unless this is due to an adrenal tumor.

Dr. Witschi's findings indicate that this congenital condition may be caused by the mother's profuse secretion of estrogen during pregnancy.

When the Iowa zoologist injected male tadpoles with moderate doses of estrogen, the males were feminized. Apparently the drug impaired the development of the male hormone-producing (interstitial) cells of the testes.

High dosages of estrogen, on the other hand, masculinized female tadpoles. It made the male hormone-producing (interstitial) cells of the ovaries develop to massive proportions and repressed the female hormone-producing (follicular) cells.

The effect of the dosage was so drastic that the sex of the animals was reversed in opposite directions—genetic males became females in low, and females became males in high concentrations. At the high dose,

the adrenal glands enlarged tenfold by weight, and showed signs of hyperactivity.

The Iowa scientist found that the effects on the adrenal were mediated by the pituitary, a tiny gland at the base of the brain which controls hormone output by the adrenal, sex and other glands. On the other hand, the sex glands are also directly affected by the estrogen. When he removed the tadpoles' pituitaries, neither low, moderate nor high estrogen doses had any effect on the animals' adrenal development, but sex reversal occurred as in unoperated larvae.

The embryonic tissue which is affected by treating the frog larvae with estrogen is the undifferentiated mesonephric blastema. Normally it develops into such organs as sex glands, adrenals, and urinary tubules. Under the influence of hormones the relative proportions of these differentiations are changed. It has been shown at the State University of Iowa and by other scientists that cancers of all these organs are affected or even caused by hormone stimulation.

Dr. Witschi has reported that human tumors of all these organs, in the light of his

experiments, may arise from abnormal prenatal hormonal stimulation. The hormones may be produced by the mother's ovaries or adrenals or by the placenta which protects and nourishes the fetus.

The results of these experiments indicate that predisposition to certain cancers may be congenital—that is, it may be brought about by environmental conditions in the womb—but not hereditary. In this event, genes may be involved only insofar as they affect the maternal hormone production.

Science News Letter, June 13, 1953

GENERAL SCIENCE

Byrd Plans Another Trip To Antarctic

► REAR ADMIRAL Richard E. Byrd, U.S.N., Ret., plans another trip to the South Pole region "if world conditions permit."

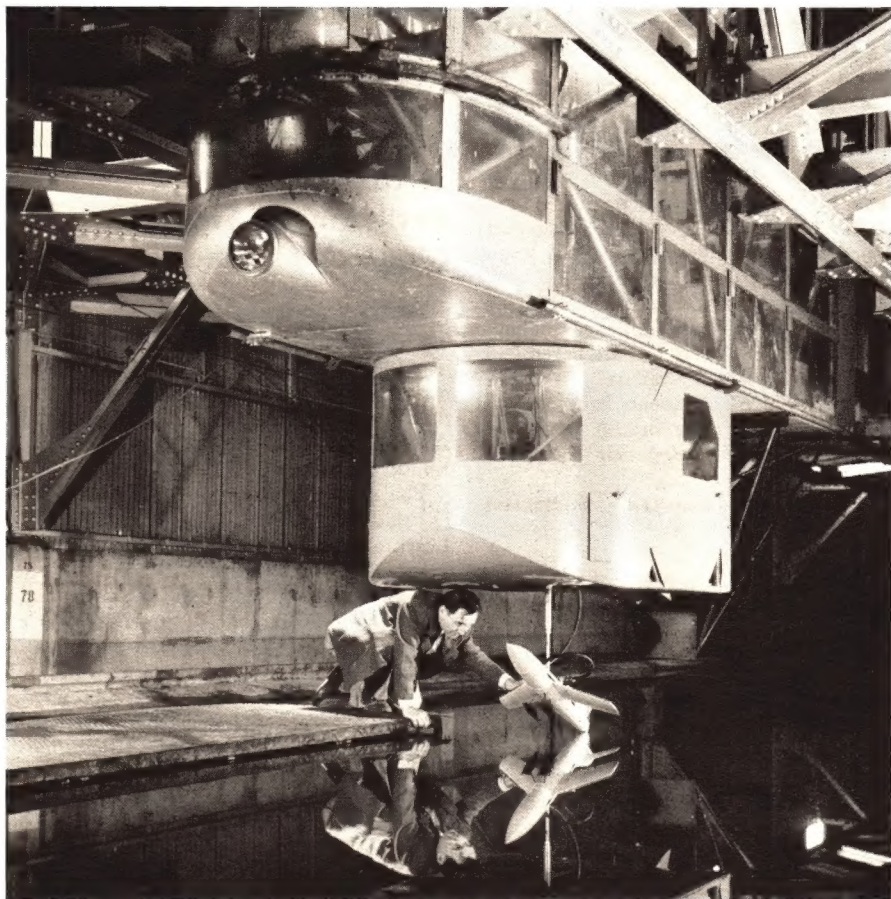
Meanwhile he will be busy supervising studies on the nutritional value of high protein bread. These will be in Germany and India, in remote U. S. Weather Bureau stations, at military installations at isolated posts and on ships long at sea. The studies will be made with fresh frozen bread which has already been shipped to Germany and soon will be en route to India.

The studies will be made for the frozen products division of Arnold Bakers, Inc., Port Chester, N. Y., which has just been set up with Admiral Byrd in charge as vice president.

Science News Letter, June 13, 1953



A "GARDEN OF EDEN"—Few white men have ever seen this spot, Canaima Falls in the heart of the Venezuela jungle. To the right is a "pink sand" beach, just three hours from Caracas by air. Landings are made in park-like stretches, free of trees, surrounding the area.



TEST RUN PREPARATION—The hydro-ski model shown here is being prepared for simulated landing and take-off tests, during which it will fly or skim over the water, at the Langley Aeronautical Laboratory, Langley Field, Va. It is suspended from the traveling carriage in such a way that it has freedom of motion and can actually fly off the water from a standing start.

AGRICULTURE

Reclaiming Farm Soil

► IF EXPERIMENTS being conducted at the State University of New Jersey's Agricultural Experiment Station, New Brunswick, N. J., prove successful, farmers of America may soon be able to make widespread use of soil conditioners. Although well known to every home gardener, they are still far too expensive for general commercial use.

News of experiments on turning industrial waste materials into soil conditioners came to light during a recent interview of Rutgers scientist Dr. Stephen J. Toth by SCIENCE SERVICE Director Watson Davis on the CBS program "Adventures in Science."

The function of a soil conditioner is to provide porosity to clay-like or crusting sandy soils that water and the tender roots of seedlings cannot penetrate. Dr. Toth predicted that huge areas of land never before farmed may some day be conditioned to give abundant yields in food, through the use of these soil conditioners.

Although fantastically tiny in quantity, such elements as molybdenum, iron and cobalt are essential to the growth of plants. Although occurring in ratios as small as one part per billion per acre in the case of molybdenic acid, they are vital to the health of humans who rely on plants as a source of food as well as to the health of the plant itself.

Two fundamental questions of soil science are:

1. Converting its granular structure for maximum usefulness to agriculture.
2. Tracing the tiny chemical fractions which make the difference between sick and healthy plants.

Positive solutions of the problems currently under study at Rutgers and elsewhere will have great bearing on the planet's ability to feed its swiftly-expanding population as well as removing hunger as one of mankind's great scourges.

Science News Letter, June 13, 1953

MEDICINE

Women Can Discover Own Breast Cancer

► WOMEN CAN discover their own breast cancers if they are taught how to examine their breasts and do so once a month.

They ought to be urged to do so since there are simply not enough physicians in the nation to give each woman an examination even every six months, Drs. Catharine Macfarlane, Margaret C. Sturgis and Faith S. Fetterman, gynecologists of the Women's Medical College of Pennsylvania, reported to the American Medical Association meeting in New York.

A study of 537 volunteer women over 15 years showed that breast cancer can develop into lesions readily detectable by the women themselves in the period between the examinations given them every six months.

The study also covered cancer of the uterine cervix. It was shown that early discovery and treatment of inflammatory lesions of the uterine cervix resulted in a low incidence of cancer of the cervix.

Science News Letter, June 13, 1953

INVENTION

Plants Grown Without Soil By Patented Method

► GROWING PLANTS without soil is made considerably less expensive and more efficient with the help of a new method of getting the nutrient solution to the plant roots that has now received a patent.

Waterproof beds are provided for the plants. At a certain distance above the bottom of the beds a perforated plate or piece of gauze is attached. On top of this is spread a chemically inert material, such as gravel, into which the plants are stuck. Their roots come out below the gauze. The nutrient solution necessary to the plants' growth comes from a lower reservoir and is circulated around the roots through the means of gutters. Once circulated it falls freely back into the reservoir.

The advantage of this method, the inventors claim, is that more oxygen is provided to the plant roots. The solution is aerated during its free fall back into the reservoir.

The new method was tried out in a greenhouse with pinks. The same kind of plants were grown with an old method in which the nutrient solution is not aerated. After six weeks the production of solids per plant was 30% higher in the new plant beds. The pinks gave flowers 18 days sooner with the new method and 12% more flowers were produced after one half a year.

The inventors are Gerrit Jan Hillegondus Ebbinge Wubben and Abram Arie Steiner of The Hague, Netherlands, and they assigned their patent, number 2,639,549, to Nederlandse Centrale Organisatie Voor Toegepast-Natuurwetenschappelijk Onderzoek, The Hague.

Science News Letter, June 13, 1953

MEDICINE

Temporary Infection Birth Control Method

► YEASTS OR bacteria in the womb and its opening might be used as a physiologic method of birth control if they can safely be transferred from one patient to another.

This possibility is one of 20 leads to birth control by physiologic methods, instead of contraceptive devices, listed by Dr. Paul S. Henshaw of the Planned Parenthood Federation of America in New York.

These bacteria or yeasts sometimes exist unnoticed in a woman's uterus or vagina. Recent studies, however, have shown that they must be responsible for a woman's failure to have wanted children. After elimination of these organisms by antibiotic treatment, women who had harbored the yeasts or bacteria were able to become pregnant.

If they can safely be transmitted from one person to another, the problem would be merely one of eliminating them by antibiotic treatment during periods when the woman wanted conception.

A substance known as Wharton's jelly offers another possible means of physiologic birth control. This substance is the soft, pulpy connective tissue that constitutes the matrix of the umbilical cord which unites mother and child before the baby's birth. A crude extract of it used as an antigen has given positive results in controlling fertility.

Some of the leads have developed to the stage where pilot testing must be considered, he states in *Science* (May 29). These, Dr. Henshaw said, are the enzyme chemical, phosphorylated hesperidin; the female hormone, progesterone; an extract from the desert plant, *Lithospermum*, and the antifolic acid chemical, aminopterin.

Science News Letter, June 13, 1953

SURGERY

Bone Becomes "Brace" In Polio Operation

► THIRTY OF 33 patients who had suffered polio could take off their leg braces after an operation described to the American Medical Association's Section on Orthopedic Surgery meeting in New York.

In effect, the operation substitutes a stiff ankle for the brace to get rid of a condition called "flail foot." This is an aftermath of poliomyelitis in which there is abnormal mobility of the feet as a result of paralysis.

Details of the procedure were explained by Dr. Walter S. Hunt, Jr., chief of the orthopedic service of three North Carolina hospitals, and Dr. Hugh A. Thompson, consulting orthopedist at the hospitals.

They explained that the operation is one that has been almost forgotten for more than 40 years. It involves removal of the ankle bone. Once out, the surgeons peel the bone of its cartilage, covering and other

material. Then other bone in contact with the ankle bone is also scraped, clean and roughened.

Once that is done, the ankle bone is put back in its bed, the incision is closed and a plaster cast is applied. This stays on until the ankle bone and the bone in which it ordinarily rests grow together.

The result is a stiff foot which can support the patient and allows him to walk even better than did his discarded braces.

The operation has been performed on 40 patients. Of 38 followed up, excellent and good results were observed in 31. Seven had fair results. None was a failure.

Thirty-five of these patients had paralytic feet. Thirty-three wore braces before the operation. Thirty discarded their braces after the operation.

Science News Letter, June 13, 1953

SURGERY

Plastic Put Into Head To Repair Skull

► PLASTIC REPLACEMENTS for parts of the skull can be made faster by a method that is giving good results in early trials at the Mayo Clinic, Rochester, Minn.

Acrylic plastic called pentocryl, used for making dental plates, is mixed as a paste, poured into place and molded with the fingers to the size and shape needed to repair the skull defect.

When once it becomes hardened, it is very solid, hard to break and has a small element of flexibility. This prevents distortion from bending such as may occur in a steel or tantalum skull replacement. Changes in atmospheric temperature do not cause discomfort and the plates are radiolucent.

Seven patients have now had these new type, molded-in-place plastic plates put into their skulls. The defects the plastic replaced were from about an inch square to about four inches square. In one or two of the patients the holes in the skull were of such size and shape that they would have been very hard to repair with the ordinary methods of making plates before putting them in place.

This easier shaping and sizing of the new method, plus greater speed in making the skull replacement, are its chief advantages over earlier ways of using metal or plastic to replace parts of the skull removed for various reasons.

The method was devised by Dr. E. Woringer of Alsace-Lorraine. It has been used at the Mayo Clinic by Drs. Henry W. Dodge, Jr., and Winchell McK. Craig. The longest time patients have been followed with the new plates is about five months.

So far the new plates have been satisfactory. The doctors pointed out in their report to the Mayo Clinic staff meeting, however, that the small number of patients and the short time make it difficult to be sure of the end results.

Science News Letter, June 13, 1953

IN SCIENCE

ENDOCRINOLOGY

Antihormone Stops Gland Over-Function

► LITTLE GIRLS who turn into women too young and some women troubled by glandular over-functioning can be helped by treatment which induces antihormone formation in their bodies, it appears from studies reported at the meeting of The Endocrine Society.

The studies were made by Drs. William O. Maddock, Ichiro Tokuyama, Robert B. Leach and William R. Roy of Wayne University College of Medicine, Detroit.

A seven-year-old girl whose ovaries had started to function like a grown woman's was one of the patients helped by the treatment.

The treatment consisted in giving injections of a hog pituitary extract which contained mainly an ovary-stimulating hormone called FSH. Estrogen, or female hormone, excretion at first increased to as high as 50 times the pretreatment level in some patients. But by the second or in some cases the third month of treatment, antihormones formed. The amount of female hormone fell to below the level before treatment.

In the case of the precocious little girl, signs of ovarian function stopped and the female hormone level remained low for four months after treatment was stopped. Then symptoms appeared again. A second course of treatment with the hog FSH again reversed the situation. In 10 days antihormones formed and female hormone dropped to normal for her age.

Science News Letter, June 13, 1953

MEDICINE

Stomach Juices Do Not Digest Stomach Ulcers

► STOMACH JUICES can digest a lot, but they do not digest stomach ulcers. The reason is that the inflammation of the ulcerated area protects against stomach juices.

Studies showing this were reported by Dr. Hans Selye of the University of Montreal, Canada, at the meeting of the International Academy of Proctology in New York.

The protection breaks down, however, under certain influences such as the hormones, ACTH, cortisone and hydrocortisone, and under intense stress of the whole system. That, according to Dr. Selye's theory, is why these hormones aggravate stomach ulcers and why intense worry or emotional strain causes a stomach ulcer to perforate.

Science News Letter, June 13, 1953

E FIELDS

PHYSICS

Cosmic Rays Constant For Last 35,000 Years

► THE HIGH energy bombardment by cosmic rays that the earth receives from outer space has not varied more than 10% to 20% over the last 35,000 years, Dr. J. Laurence Kulp and Herbert L. Volchok of Columbia University's Lamont Geological Laboratory, Palisades, N.Y., have concluded.

For the last 4,000 years, the radiocarbon dating by means of carbon 14 compares satisfactorily with historical dates. For older ages, the carbon 14 of layers of mud in deep sea cores checked satisfactorily with ages given by the method based on radioactivity of ionium.

Cosmic rays smashing into the upper atmosphere continuously change nitrogen atoms into radioactive carbon with an average life of approximately 8,000 years. This allows the use of the radioactive carbon as a geological clock.

The Columbia scientists report their research in the *Physical Review*, (May 15).

Science News Letter, June 13, 1953

MEDICINE

To Fight Poliomyelitis Use Gamma Globulin

► THIS SUMMER we have one more weapon for fighting poliomyelitis. This is gamma globulin, or GG for short. It is the part of human blood that contains disease-fighting antibodies. It has been used for many years to combat measles.

Last summer scientists reported it to be an effective but temporary preventive of crippling caused by polio. Unfortunately, GG is in extremely short supply. It takes just about one pint of blood to make an average GG polio-shot.

There will be only about one million doses of it available from now until September, and there are about 46 million children and adolescents in the age groups most likely to get polio.

The Office of Defense Mobilization, a government agency, is solely responsible for distribution of the nation's supply of GG. The supply comes either from blood donated to the Red Cross or from blood purchased by commercial companies. All this commercially produced GG is being purchased for the nation's stockpile by the National Foundation for Infantile Paralysis.

Parents cannot buy GG. The family doctor or the child's doctor can get it through the local health officer if it is possible for a child to get it. Whether or not a particular child gets it depends on the avail-

able supply and the method of allocation, which is chiefly to children in a family in which there is already one case of polio.

Meanwhile, there are certain rules and precautions to follow during the polio season. Health authorities and the National Foundation for Infantile Paralysis recommend the following: 1. Do not let children mix with new groups, 2. Or get overtired, 3. Or get chilled, 4. But DO keep them clean. And consult your doctor if these symptoms appear: headache, fever, sore throat, upset stomach, stiff neck or back.

Science News Letter, June 13, 1953

MEDICINE

Tropical Plant Yields Blood Depresser Chemical

► A DRUG with "marked" sedative and blood-pressure-reducing effect has been extracted from the root of the tropical plant, *Rauwolfia serpentina*.

It is believed to be the active compound of this plant which has long been used, in crude form, in India. Among its users for its nerve-quieting, sleep-inducing effect was Mahatma Gandhi.

The drug has been named Serpasil by its manufacturers, Ciba Pharmaceutical Products, Inc. Research leading to the drug's extraction was directed by Ciba scientist Dr. Emil Schlittler.

Tests so far show that it may be useful for prolonged treatment of high blood pressure. Early distribution of the drug to doctors and hospitals and a broad program of further trial on patients are planned, Dr. F. F. Yonkman, vice president of Ciba, reported.

Science News Letter, June 13, 1953

ENDOCRINOLOGY

Better Chemical Weapons Against Cancer of Thyroid

► BETTER CHEMICAL weapons against cancer of the thyroid gland in the neck may be forged in the future as a result of a discovery by Drs. Jacob Robbins, J. E. Rall and R. W. Rawson of Memorial Center for Cancer and Allied Diseases, New York.

Certain cancers of the thyroid, they discovered, form a "unique iodine compound." The compound is different from other iodine compounds formed in the thyroid gland and has never before been found in the blood.

Discovery of the substance was announced at the meeting of The Endocrine Society in New York.

It is considered significant and likely to lead to better future treatment of thyroid cancer, because each difference found between normal and cancer cells points a route through which cancer cells may be vulnerable to attack without harming normal cells.

Science News Letter, June 13, 1953

CHEMISTRY

Pine Gum Acid May Help Air Force in Cold North

► PINE TREES growing in southeastern United States soon may help the Air Force stay aloft in the Arctic's frigid winter climate.

The trees produce pine gum from which special lubricants can be made. The lubricants help jet engines start and run in temperatures that plunge to 75 degrees below zero Fahrenheit. The synthetics remain fluid at those low temperatures, and do not become gummy like ordinary petroleum lubricants.

Chemists of the Office of Naval Research, working with scientists of the Department of Agriculture, have made pinic acid out of one of turpentine's major constituents, alpha pinene. They have mixed high-boiling alcohols with the pinic acid to obtain the excellent qualities desired for the synthetic.

At present, pinic acid has been made only on a test tube basis, but one commercial method of manufacturing the fluid now is being explored by Armour Research Institute. The Georgia Institute of Technology is expected to try out another method soon. The Bureau of Agricultural and Industrial Chemistry's Southern Regional Research Laboratory in New Orleans also is searching for ways to turn out big batches of pinic acid economically.

Science News Letter, June 13, 1953

NUTRITION

Too Much Vitamin A May Cause Defective Babies

► A HINT that too much vitamin A in pregnancy may lead to stillbirth of the baby or a baby born defective appears in studies by Dr. Sidney Q. Cohlan of the pediatrics department of Beth Israel Hospital and New York University College of Medicine and the children's medical service, Bellevue Hospital, New York.

Dr. Cohlan's studies were made on rats. When he fed excessive amounts of vitamin A to 100 pregnant rats, only 10 carried their young to term. This "successful pregnancy rate" of 10% compares with one of 88% for a group of 50 pregnant rats that got the same diet except for the excessive vitamin A.

Of the 74 offspring in the 10 litters from the excessive vitamin A rats, 34 were born with gross deformity of the skull and brain, a deformity rate of 54%. None of the 410 offspring of the control rats had any deformities at birth, he reports in *Science* (May 15).

The deformed rats all were born with their brains protruding onto the outside of their heads. Some had, in addition, such deformities as enlarged, protruding tongue, hairlip, cleft palate and gross defects in eye development.

Science News Letter, June 13, 1953

MEDICINE

Cancer and the Emotions

Do stress and tension have an effect on the rate of growth of cancer? Tests of the emotional make-up of cancer patients show a difference between them and people without the dread disease.

By WADSWORTH LIKELY

► WHEN YOU are sad, the tears come to your eyes. When you are angry or frightened, your heart pounds. When you are embarrassed, you blush.

These are three obvious examples of how our emotions act and interact with physical, chemical and biological changes in our bodies.

Cancer is a biochemical change in the body. Something happens so that normal cells go wild. They begin to multiply much too fast. They suck the materials on which the body lives from the still normal cells. They multiply and grow until they overwhelm vital organs.

Some people cry more easily than others. Some people are more easily angered or frightened than others. Some people are always blushing. People with different kinds of emotional make-up have this difference reflected in their bodily processes.

In some people, cancer grows much faster than in other people. Is there some connection, some relationship between cancer and the emotions?

There is no answer to that question yet. But the question is being taken seriously enough to be investigated by competent psychologists, psychiatrists on the one side and competent biochemists and physicians on the other. No one says that a particular emotional make-up can cause cancer.

For cancer of the breast, sex hormones are sometimes administered. Right now figures show that about 30% of the women so treated get well. On the other hand, 40% get worse and in 30% there is no change in the cancer. You cannot predict, by looking at the breast cancer, which woman will get well and which woman will get worse.

Test Emotional Make-Ups

But biochemists and psychologists at the M. D. Anderson Cancer Hospital of the University of Texas, Houston, are banding together to find out whether or not there is a significant difference in the emotional make-up of women who respond well and women who respond poorly to treatment with sex hormones. They know that sex hormones have some effect on how people feel about sex. Therefore the chemical may interact differently with chemicals in the body as the emotional make-up differs.

If they can find out what kinds of emotional make-up will respond well to hormonal treatment, they can use psychological tests, including the Rorschach ink blot tests, to predict success of that kind of treatment.

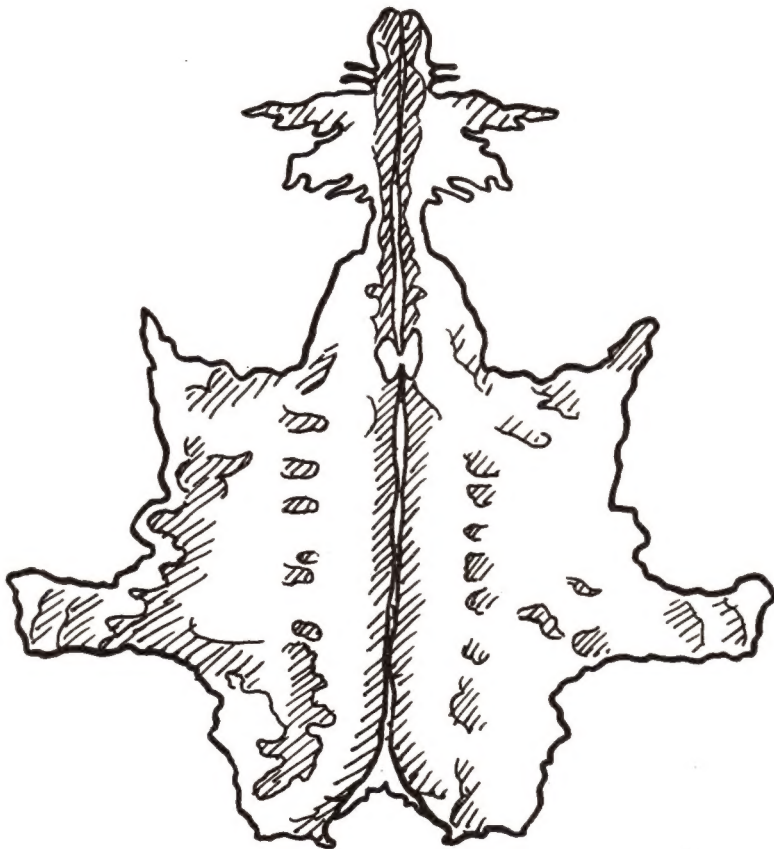
This is only one phase of an investigation of the relationships between cancer and the emotions. It is too early, yet, for any findings. However, it is significant that biochemists—people who usually work with the complexity of chemical compounds and their effects on organs of the body—now want to know how the emotions fit into the picture.

Ulcers, the disease of civilization, are com-

monly thought of as a result of the tension and high pressure resulting from the competition of the American market place. Where people rush around, where the papers are stacked high on the desk, where decisions affecting millions of dollars are constantly made under pressure—there the incidence of ulcers is high.

A team of medical men and psychologists at the Long Beach, Calif., Veterans Administration Hospital has asked the question: If such things as ulcers are so intimately tied up with the emotions, with tension and stress, why not cancer?

As a matter of fact, one leading cancer surgeon, Dr. Alton Oschner, Henderson Professor of Surgery at Tulane in New Orleans, will take out most of the stomach of a patient whenever there are signs of ulcers in the stomach. Many physicians do not believe that ulcers can develop into cancer. Dr. Oschner believes that they do



SIMULATED RORSCHACH BLOT—What does this remind you of? This is similar to a Rorschach ink blot—actual blots are not released for fear of spoiling the test—used to measure people's emotional make-up. People are asked to tell what the blots remind them of. This and other tests are being used to measure the difference in emotional make-up between cancer patients and other people.

develop into cancer often enough to warrant taking out all but a small portion of the stomach as a preventive measure.

Whether or not ulcers, commonly accepted as a result of tensions and stress, can develop into cancer, it is generally believed that emotions can markedly influence the body defenses against disease. The course of an illness, even an infection such as tuberculosis, can be remarkably influenced by emotional stresses.

Dr. Philip M. West of the Medical School at the University of California at Los Angeles heads a team of psychologists and medical men trying to find out the relationship between the rates of growth of various cancers and the emotional make-up of cancer patients at the Long Beach Veterans Hospital.

Growth Rates Vary

He has pointed out that there are tremendous differences in the growth rates of the same kinds of cancers in different patients. Physicians have been at a loss to explain this. For instance, Hodgkin's disease, one type of cancer, kills some victims in a few weeks—others live for as long as 20 years. Or a patient with stomach cancer may live only a short time, despite the best early diagnosis and treatment. Another with the same kind of cancer may survive for many years, even when the original cancer cannot be totally removed.

What makes the difference?

Dr. West and his collaborators, Dr. Eugene M. Blumberg, clinical psychologist, University of Southern California, and Dr. Frank W. Ellis, in charge of the tumor clinic at the veterans hospital, asked themselves that question.

They decided to find out whether there were any personality differences between the patients with fast-growing cancer tumors and those with slow-growing tumors. They gave many psychological tests.

Find Personality Pattern

When the tests were scored, they suggested that people with rapidly growing cancers have a strong tendency to conceal their inner feelings, and are less able to reduce tensions by doing something about them and getting them off their chests than are the patients with slowly-growing tumors.

The results indicate that there are very definite personality patterns in cancer patients which can be correlated, with an accuracy of 88%, with the relative rapidity or slowness of cancer progression in the individual patient.

As a result of these experiments physicians may be able to take a patient with newly discovered cancer and predict with a reasonable degree of accuracy just how fast his disease will progress. This will have an important bearing on the method of treatment, and how the patient will respond to any kind of treatment.

But a still larger question remains unanswered. Do the emotions act on the body substances which produce this fast rate of growth, or is there something else which is the cause of both the tensions and the fast-growing tumors?

Leukemia is called cancer of the blood. It is the over-production of blood cells similar to the white blood cells used by the body to fight infections. These abnormal

white blood cells multiply so fast that they overwhelm and replace the body's normal blood supply. Leukemia, today, is always fatal, although certain chemicals and certain hormones can retard the swift pace of the disease.

When you are subject to physical or mental stresses, such as cold, hunger, fright, anger or fatigue, the production of hormones by the adrenal cortex goes up. This

PHILOSOPHICAL LIBRARY BOOKS

□ **THE LOST PHARAOHS** by Leonard Cottrell. How the secret of their resting place was discovered—the incredible vision which greeted those who first gazed on the Tutankhamun discoveries, and the far-reaching effect of the discovery of the Rosetta stone on the history of Egyptology are just a part of this amazing story which will bring to its readers a new understanding of the romance and fascination of Ancient Egypt. *Illustrated.* \$6.00

□ **THE SPLENDOR THAT WAS EGYPT** by Margaret A. Murray. A magnificent survey in six sections—Prehistory, History, Social Conditions, Religion, Arts and Sciences, Language and Literature. *More than 200 illustrations in line, half-tone, and color.* \$10.00

□ **PRELUDE TO HISTORY** by Adrian Coates presents a comprehensive view of the origin and development of humanity: its art and religion, its taboos and theories, its past and present. *Maps and Illustrations.* \$4.75

□ **PREHISTORIC EUROPE: THE ECONOMIC BASIS** by J. G. D. Clark. The author of *Archaeology and Society* examines the basic economic activities of the prehistoric inhabitants of Europe since the end of the Ice Age. The book is fully referenced. *With 16 halftone plates, 2-color map, and 182 line illustrations.* \$12.00

□ **DEAD CITIES AND FORGOTTEN TRIBES** by Gordon Cooper. In far-off places, where ancient civilizations once held sway, stand ruined cities which were great a thousand years ago: wonderful Angkor and Ponape in the Carolines; Zimbabwe built by a vanished race, and the jungle guarded Anuradhapura in Ceylon, and others in every continent. Who built these cities, and when were they new? \$4.75

□ **ANCIENT SPARTA** by K. M. T. Chrimes. This book makes for the first time a comprehensive study of the numerous inscriptions, dating from the Roman period, which at various times have been found at Sparta. *Illustrated.* \$8.75

□ **FORGOTTEN RELIGIONS.** Edited by Vergilius Ferm. The religions described in this volume, which contains much material new even to scholars, include those of Sumeria, ancient Egypt, Syria and Babylonia; the Hittites; ancient Canaan; prehistoric Greece and later Greece; ancient Persia; Tibet; Australian aboriginals; South American Indians; Eskimos; primitive American cultures. *Illustrated.* \$7.50

□ **THE ORIGIN OF SPECIES** by Charles Darwin. The text of the original edition of Darwin's epoch-making work is presented with a preface by Dr. C. D. Darlington. \$3.75

□ **CLIMATE, VEGETATION AND MAN** by Leonard Hadlow. In this book an attempt has been made to survey life in its climatic setting. *Illustrated.* \$4.75

□ **SOLITUDE AND PRIVACY** by Paul Halmos. Man's loneliness in society is the central theme of this work. \$4.75

□ **A SHORT DICTIONARY OF MYTHOLOGY** by Percival George Woodcock. This is a popular classical and mythological dictionary for the general reader, produced in a convenient form. Schools will find it invaluable. \$2.75

□ **DJANGGAWUL** by Ronald M. Berndt. This volume is concerned with Australian Aboriginal religious life in the north-eastern and north-central region of the Arnhem Land Reserve in the Northern Territory of Australia. *With 29 halftone illustrations.* \$7.50

□ **BLOOD-BROTHERS** by Harry Tegnaeus. The author, Lecturer in Comparative Ethnography at the University of Upsala, gives a comprehensive account of the vast amount of published data concerning blood-brotherhood and blood-pacts. *Illustrated.* \$12.00

□ **THE SOVIET IMPACT ON SOCIETY** by Dagobert D. Runes, with an *Introduction* by Harry Elmer Barnes. In this volume, the well-known philosopher examines the cultural and social changes brought about in the Western and Eastern world by the materialization of Marxist ideology. \$3.75

□ **A NEW THEORY OF HUMAN EVOLUTION** by Sir Arthur Keith. An absorbing exposition of the theory that man is not descended from any existing anthropoid but from some now extinct relative. \$4.75

□ **ENCYCLOPEDIA OF ABERRATIONS.** Edited by Edward Podolsky, M.D., with a *Preface* by Alexandra Adler, M.D. In this volume are discussed all the types of aberrations, with particular emphasis on their psychodynamics. \$10.00

MAIL THIS COUPON TODAY
PHILOSOPHICAL LIBRARY, Publishers
 15 E. 40th St., Desk 35, New York, 16, N. Y.
 Send books checked. To expedite shipment I enclose remittance \$.....
 Name
 Address

is to give you that added push necessary to meet the crisis brought about by the stress.

However, these hormones attack and kill the white blood cells or lymphocytes. Yet Drs. Thomas F. Dougherty and Jules A. Frank of the University of Utah discovered that this destruction of normal white blood cells is not always apparent. They seem to be replaced, sometimes almost as fast as, and sometimes faster than, the hormones kill the cells.

"Stress Cells" Found

Looking further into the matter, they found that the replacement cells were not exactly like the normal cells. They appeared to be somewhat similar to the leukemia cells although they were not deadly. Dr. Dougherty named them "stress cells."

What caused the production of these stress cells? The two scientists have now identified a mysterious substance "X" which seems to be produced when mental or physical stress takes hold of an animal or a human. This substance "X", which they have not as yet identified completely but which they have seen, causes the lymphatic tissues to produce these "blood brothers" to the white blood cells, the stress cells.

This has an influence on the course of a great many diseases, such as arthritis and tuberculosis. It has a bearing on the disease of leukemia. Is there something similar to substance "X" which is responsible for the production of leukemic cells? Is a leukemic cell an abnormal stress cell?

Tiny electric currents course through the brain and change magnitude as we think or dream or experience emotions. These can be measured, and are measured by

neurologists to find out something about the activity of various parts of the brain. Only recently some scientists have been sending small electric currents into the brain to find out whether they can affect the brain activity and many of the body functions which depend on the brain.

At Tulane in New Orleans, Dr. Robert G. Heath, a psychoanalyst, implanted electrodes three inches into the skull of a woman with incurable cancer of the cervix. She was in constant pain. Two hours before Dr. Heath gave her the first small jolt of electricity, she had been given a large amount of morphine which had little effect on her horrible pain. Her face was drawn with suffering. She was down to 75 pounds in weight.

Two milliamperes of electricity—instantly, she lost her pain. What is more, the effect lasted for about a week and could be repeated. Two months after the first jolt,

she was up and walking around the hospital, and she had made plans to go out to a movie.

Accompanying the loss of the pain there was a rise in the production of certain hormones called 17-keto-steroids. Dr. Heath saw both a psychological and a chemical change.

This patient's cancer was widespread. It had invaded many adjacent parts of the body. When Dr. Heath was asked whether his treatment for pain had had any effect on the cancer, he answered: "Who knows?"

That, in two words, is the answer to any question today about the interrelationships between cancer and the emotions. But five years ago, the answer would have been a decided "No." Now the scientists have learned enough and guessed enough so that this question has become an important part of the general picture of cancer research.

Science News Letter, June 13, 1953

• Books of the Week •

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N. W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

ADVANCED STYLE IN LETTERING—Jean Loisy, Ed.—*Sterling*, 110 p., illus., \$5.00. Contains new letter designs which have been created and evolved in Europe, and describes ways in which they have been utilized.

THE ART AND SCIENCE OF STAGE MANAGEMENT—Peter Goffin—*Philosophical Library*, 120 p., \$3.75. A critical study of the aesthetic and technical aspects.

ATOMS, MEN AND GOD—Paul E. Sabine—*Philosophical Library*, 226 p., \$3.75. Attempts a synthesis of the fundamental concepts of modern science and psychology with the intellectual content of Protestant religious faith.

THE CAPTIVE MIND—Czeslaw Milosz, translated by Jane Zielonko—*Knopf*, 251 p., \$3.50. By the Polish poet who broke with the communist government in Poland, with tells of the moral and psychological effects of the official philosophy of dialectical materialism on the people behind the Iron Curtain.

CHICHICASTENANGO: A Guatemalan Village—Ruth Bunzel—*Augustin*, American Ethnological Society Pub. XXII, 438 p., \$7.00. A study of the life and culture of a town in the Guatemalan Highlands.

COLOMBIA: A General Survey—W. O. Galbraith—*Royal Inst. of Int. Affairs*, 140 p., illus., \$2.50. An introduction to the country's history and geography, its present and potential economic development, its health problems, etc.

FRUIT OF AN IMPULSE: Forty-five Years of the Carnegie Foundation, 1905-1950—Howard J. Savage—*Harcourt, Brace*, 407 p., \$6.00. A history of this noted philanthropy, its operations, the development of its policies and their effects upon American education.

HAPPY JOURNEY: Preparing Your Child For School—Beatrice M. Gudridge—*National Education Association*, 32 p., illus., paper, 40 cents. Ways in which parents can aid future first graders and about-to-be kindergartners to adjust happily and easily to school living.

A HERD OF MULE DEER: A Record of Observations Made on the Hastings Natural History Reservation—Jean M. Linsdale and P. Quentin Tomich—*Univ. of California Press*, 567 p., illus., \$8.50. Demonstrates the deer's many responses to a wide range of environmental situations in one locality.

AN INTRODUCTION TO ANTHROPOLOGY—Ralph L. Beals and Harry Hoijer—*Macmillan*, 658 p., illus., \$6.00. An elementary college text, this has interesting sections on racial types, race problems and on the new applied anthropology. Includes a discussion of the problem of removing the native people from the atomic proving ground at Bikini.

IONIC PROCESSES IN SOLUTION—Ronald W. Gurney—*McGraw-Hill*, 275 p., illus., \$6.50. For graduate students and research workers in the field of electrochemistry, this deals with the chemistry of ions in solution.

A LABORATORY MANUAL OF COMPARATIVE EMBRYOLOGY—Alfred F. Huettner—*Macmillan*, 116 p., paper, \$1.75. Aids in facilitating the laboratory work of a course in embryology.

LET'S WORK TOGETHER IN COMMUNITY SERVICE—Eloise Walton—*Public Affairs Committee*, 28 p., illus., paper, 25 cents. Points out the need for welfare agencies to co-ordinate their efforts in aiding "problem" families.

LOGIC AND LANGUAGE: Second Series—A. G. N. Flew—*Philosophical Library*, 242 p., \$4.75. An

Tungsten-Mercury
Uranium



find

vital war metals!

with Ultra-Violet

MINERALIGHT

MINERALIGHT instantly identifies tungsten, mercury and many other valuable minerals now in great demand for rearmament. MINERALIGHT models for every requirement. Money-back guarantee.

ACTUAL ATOMIC BLAST SAMPLE!
Send 25c for new mineral specimen from 1st atomic blast at Alamogordo, New Mexico.

FREE! Send for brochure SNL
"Prospecting for Scheelite
(tungsten) with Ultra-Violet."



ULTRA-VIOLET PRODUCTS, INC.

145 Pasadena Ave., South Pasadena, Calif.



HARD TO SPOT—If you have trouble seeing the sargassum fish, *Histrio histrio*, hidden among the tropic and semi-tropic sargassum sea weed in the photo on the left, so do his natural enemies who would like to make a meal of him. But move him out of his natural environment as in the photo on the right, and the sargassum fish stands out like a barber pole. His orange, brown and white coloration, along with the flapping membranes about his body, afford him ideal camouflage in his sea weed home.

introduction to the recent linguistic developments in philosophy.

MEASUREMENT OF AIR POLLUTION—W. C. L. Hemeon, J. D. Sensenbaugh and G. F. Haines, Jr.—*Mellon Institute*, 5 p., illus., paper, free upon request direct to publisher, 4400 Fifth Avenue, Pittsburgh 13, Pa.

THE NATURE OF VIRUS MULTIPLICATION: Second Symposium of the Society for General Microbiology Held at Oxford University, April 1952—Paul Fildes and W. E. Van Heyningen, Eds.—*Cambridge Univ. Press*, 320 p., illus., \$6.50. Papers and discussions by experts representing the various schools of thought as to the nature of virus multiplication.

NEW WORLD WRITING: 3rd Mentor Selection—*New American Library*, 360 p., paper 50 cents. A cross section of current world literature

including an article, *Sex and Censorship in Contemporary Society*, by Margaret Mead.

NOTES ON FLYCATCHERS OF GENUS BATIS—Austin L. Rand—*Chicago Natural History Museum*, 15 p., paper, 35 cents. A review of the species minor, molitor, perkeo and soror.

NOTES ON PHILIPPINE MOSQUITOES, XIII: Four New Species of *Zeugomyia* and *Topomyia*—Francisco E. Baisas and Pablo Feliciano—*Chicago Natural History Museum*, 18 p., illus., paper, 50 cents. Descriptions of the new types found by the Philippine Zoological Expedition in 1946-1947.

PERSONALITY DEVELOPMENT IN ADOLESCENT GIRLS—L. K. Frank, R. Harrison, E. Hellersberg, K. Machover, and M. Steiner—*Child Development Publications*, 316 p., illus., paper, \$4.50. A report based on the responses to five personality tests by 300 adolescent girls.

PHILOSOPHY: An Introduction—Archie J. Bahm—*Wiley*, 441 p., \$4.50. Designed to provide a grasp of the nature of philosophy, its problems, its types, its main issues and main types of solutions.

THE PSYCHOLOGY AND PSYCHOTHERAPY OF OTTO RANK: An Historical and Comparative Introduction—Fay B. Karpf—*Philosophical Library*, 129 p., illus., \$3.00. A summary of the more important views on theory and therapy, and an account of the career of this student of Freud.

THE ROAD TO ABUNDANCE—Jacob Rosin and Max Eastman—*McGraw-Hill*, 166 p., \$3.50. A survey of chemistry's achievements to date in producing synthetic products, and a forecast of its role in achieving "Freedom from Want."

SENSATIONAL OPTICAL BARGAINS

NEW 30 POWER TELESCOPE

Complete With Tripod
Unusual Bargain Price



A beautifully made, sturdy, imported instrument with dozens of uses. Spots 22 caliber bullet holes at 200 yds. You can see the craters on the moon—observe, close up, birds, animals, etc., see ships far out at sea. Excellent for amateur astronomers. All metal body—focuses from approx. 40 ft. to infinity. Achromatic objective—40 mm dia.—outside surface low reflection coated. Smooth slide focusing eyepiece. Eyelens outside surface coated. Lens erecting system. Images right side up. Sturdy tripod 8 1/4" high. Can be used also for camera. Max. length 26 1/4". Barrel diam. approx. 1 1/2". Weight 1 1/2 lbs.
Stock No. 70,018-Q.....Only \$21.95 Postpaid

YOUR CHANCE TO OWN A
VERY FINE INSTRUMENT

IMPORTED MICROSCOPES

100, 200, 300 POWER

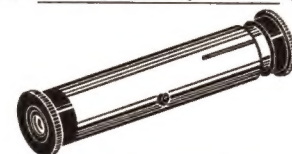
ONLY
\$14.95
Postpaid

1 Ocular
3 Objective
Lenses.
Rack & Pinion
Focusing.



Good optical qualities. Fine focusing. Certainly not the equal of a \$200 instrument—but definition is surprisingly clear and good... in fact amazingly so at this price. Revolving disc-light, adjustable mirror. Square Stage (2 3/4" x 2 3/4") with slide clamps. Serviceable construction. The greatest microscope bargain on the market! TRY IT FOR 10 DAYS... if you're not completely satisfied your money will be refunded in full. Instrument comes packed in sturdy, hardwood case.
Stock No. 70,008-Q.....\$14.95 Postpaid

PREPARED MICROSCOPE SLIDE SETS
10 Slides in Set—Standard Size Per Set
Stock No. 40,006-Q Vegetables.....\$2.50 P.P.
Stock No. 40,007-Q Animals.....\$2.50 P.P.
Stock No. 40,008-Q Micro-Organisms.....\$3.00 P.P.



DIFFRACTION SPECTROSCOPE

Uses grating replica instead of prisms. Enables you to see what your photographic filters do... to see color characteristics of your photo light sources. You can attach to your camera for taking spectrograms. A wonderfully useful and practical instrument. Imported from England. A real bargain.
Stock No. 50,020-Q.....\$14.70 Pstpd.

IMPORTED BABY MICROSCOPE

80 Power—Only 5" High
A little gem, gives astoundingly sharp definition! Good optical qualities, hinged base for inclined easy viewing, easy-to-use pinion focusing. Circ. stage, revolving disc-light mirror.

Stock No. 50,000-Q....\$4.00 Postpaid



A BRAND NEW IDEA! COMBINATION 50X MICROSCOPE AND 10X TELESCOPE

Amazingly practical and useful. Carry it right in your pocket—has convenient holding clip. The 50 power microscope is easily focused by tilting slightly. Achromatic objective lens. Used for any close-up examination or inspection. Just remove metal cap and draw out sliding tube for focusing telescope. An imported instrument at a bargain price. Chrome and black finish. Length closed 5 1/2"—dia. 1 1/16".
Stock No. 30,059-Q.....\$4.50 Postpaid

SIMPLE LENS KITS! Kits include plainly written illustrated booklet showing how you can build lots of optical items. Use these lenses in experimental optics, building TELESCOPES, low power Microscopes, etc.
Stock #2-Q—10 lenses.....\$1.00 Postpaid
Stock #5-Q—45 lenses.....\$ 5.00 Postpaid
Stock #10-Q—80 lenses.....\$10.00 Postpaid
WE Have Literally Millions of WAR SURPLUS LENSES AND PRISMS FOR SALE AT BARGAIN PRICES. ALSO DOZENS OF LOW COST IMPORTED INSTRUMENTS.

Write for Catalog "Q"—FREE!
Order by stock No. Send Check or M.O.
Satisfaction Guaranteed!

EDMUND SCIENTIFIC CORP.
BARRINGTON, NEW JERSEY



**SAVE on
PHOTO
SUPPLIES**

BRAND NEW Still & Movie Cameras, Projectors, Film, Lenses, Editing Equipment, Sound Projectors, Stereo Equipment at...

**Amazingly Low Prices
Send for Quotations**

Also largest selection of HOME MOVIES at unheard of low prices. Write now for lists.

IMPERIAL ENTERPRISE, INC.
34 Park Row, Dept. L, New York 38, N. Y.

THE ROLE OF BACTERIA IN THE FORMATION OF ACID FROM CERTAIN SULFURIC CONSTITUENTS ASSOCIATED WITH BITUMINOUS COAL: Parts I and II—W. W. Leathen, S. A. Braley, Sr., and Lois McIntyre—*Mellon Institute*, 8 p., paper, free upon request direct to publisher, 4400 Fifth Avenue, Pittsburgh 13, Pa.

A SILICIFIED FLORA FROM MEXICO—Claude B. Bronaugh—*Memphis Museum*, 5 p., illus., paper, 15 cents. Describes 3 plant forms found near Sierra Madre Occidental in Mexico.

SOCIETY—DEMOCRACY—AND THE GROUP: An Analysis of Social Objectives, Democratic Principles, Environmental Factors, and Program in the Practice of Social Group Work—Alan F. Klein—*Woman's Press* (William Morrow), 341 p., \$4.00. Deals with group work's social goals and aspirations.

THE SUPRARENAL CORTEX—J. M. Yoffey, Ed.—*Academic Press*, 232 p., illus., \$6.80. Papers on the effects of the steroid hormones that were presented at the Fifth Symposium of the Colston Research Society held in the Univ. of Bristol, April 1-4, 1952.

TV MANUFACTURERS' RECEIVER TROUBLE CURES, VOL. III—Milton S. Snitzer, Ed.—*Rider*, 119 p., illus., paper, \$1.80. The makers provide hints on how to make their television sets work better. Covering models from Kaye-Halbert to Philco.

TREES AND THEIR STORY—Dorothy Sterling—*Doubleday*, 119 p., illus., \$2.50. Beautifully illustrated with photographs, this is a simple and concise introduction to the whole story of trees. Ages 8-12.

THE TRUTH ABOUT AMERICAN CARS!—Andrew J. White—*Motor Vehicle Research*, 48 p., illus., paper, \$1.00. Outlines the many design faults of present automobiles, and points out that safe car design would eliminate injury and death in up to 60% of the accidents.

WELDING ALUMINUM: Including Brazing and Soldering—G. W. Birdsall, Ed.—*Reynolds Metals Co.*, 186 p., illus., paper, \$1.00. A handbook to welding aluminum by the metal-arc, carbon-

arc, atomic-hydrogen, inert-gas-shielded-arc and gas processes as well as by the various forms of resistance welding.

WHAT'S YOUR PROBLEM?—Alfred Blazer—*Citadel*, 372 p., \$3.50. In a question and answer form, a psychiatrist discusses many of the problems of modern day living.

YEAR'S BEST SCIENCE FICTION NOVELS, 1953—Everett F. Bleiler and T. E. Dikty—*Fell*, 315 p., \$3.50. Contains five short science-fiction novels.

YANKEE DIPLOMACY: U. S. Intervention in Argentina—O. Edmund Smith—*Southern Methodist Univ. Press*, 196 p., \$3.00. A review of U. S. foreign policy in relation to Argentina, 1933-1950, based on the assumption that our intervention in Argentina has damaged our prestige.

Science News Letter, June 13, 1953



Sweets From Trees

► **HONEY THAT** you find on the market is most commonly labeled "clover honey" or "alfalfa honey."

That is understandable enough, for there are enormous acreages in alfalfa and the various kinds of clover, and since every flower that is to produce merchantable seed must be visited by a bee, there is naturally going to be a lot of honey produced from their nectar.

However, there are a number of flowering trees that are copious producers of nectar, and that in their season are eagerly visited by bees. Their honey is not always identified for market purposes; but persons with a discriminating sweet tooth know their special fragrances, and will proclaim the virtues of their favorite tree honeys as connoisseurs enthuse about their pet wines.

Excellent honey is produced, for example, from the nectar of tulip-tree flowers. The tulip-tree is abundant over most of the country east of the Mississippi, and although its flowers do not last long, they produce a

ENTOMOLOGY

One of Largest U. S. Moths Leaving Cocoon

See Front Cover

► **THE CECROPIA** moth, shown on the cover of this week's *SCIENCE NEWS LETTER* after emerging from its cocoon, is one of the largest American moths. The wings of the adult may stretch six inches across, while its colorful body is about four inches long.

This handsome insect, *Hyalophora cecropia*, is found from the Atlantic coast to the Rockies. In the North Atlantic states there is a similar, though smaller, species, *Hyalophora columbia*. On the West Coast, *H. rubra* represents the genus, while in the Rocky Mountains and Arizona, *H. gloveri* occurs.

Science News Letter, June 13, 1953

copious nectar-flow, enabling the bees to fill much comb with this type of honey in a short time.

A related type of fragrant honey, sometimes met in the South, comes from the flowers of the tulip-tree's close kindred, the magnolias.

Of the South also, and the Southwest, is orange-blossom honey, which carries with it some of the fragrances of the flowers themselves. It is one of the lightest-colored of the tree honeys, a point in its favor so far as the market is concerned.

A hardy tree of the North, whose flowers are the source of a most excellently-flavored honey, is the linden or basswood. Its clustered little flowers are inconspicuously greenish but intensely sweet-scented, and while they are in bloom, the bees simply go mad over them.

Many honey-tasters declare that the best-flavored of all honeys comes from the sourwood tree. This is a tree of rather limited distribution, being abundant only in parts of the Appalachian highlands, but where it does grow, and bees are given a chance at it, they will produce from its clusters of heather-like bloom a most unforgettable sweet.

Science News Letter, June 13, 1953

TECHNOLOGY

Spark Plugs Get "Rubber Boots"

► **SYNTHETIC RUBBER** "boots" for spark plugs that will keep auto engines running in wet weather were described to the American Chemical Society's rubber chemistry division meeting in Boston by Dr. Ward J. Remington, a Du Pont chemist.

The "boots" will be made of "Hypalon" rubber, which is a chlorosulfonated polyethylene. Tests show that these boots remain serviceable for 72,000 miles at average driving speed.

Science News Letter, June 13, 1953

Self-Adhesive Labels CONSECUTIVELY NUMBERED

993 994 995 996 997

For Numbering Samples Consecutively
Easy to Use—Speedy—Error-Proof.

Set 1 to 1000, in dispenser \$6.50
Extra Sets of 1000: Each \$4.00

5 Sets \$18.00 Samples L-SNL on Request

NOW READY!

1953 DIGEST
of

Cargille Laboratory Aids

Just write for Digest SNL

R. P. Cargille Laboratories, Inc.
117 Liberty St., New York 6, N. Y.



RESEARCH LUNCHEON—President Eisenhower is sampling orange juice, prepared as a result of research carried on in the laboratories and field stations of the Department of Agriculture, during his recent tour of the Beltsville Research Center, Beltsville, Md. He is shown with Secretary of Agriculture Ezra Benson and Dr. Hazel K. Stiebeling of the Bureau of Human Nutrition and Home Economics.

VETERINARY MEDICINE

Foot-and-Mouth Fight

► **MOVING WITH** an efficiency and speed learned from bitter experience, Mexican and United States authorities have supervised the complete slaughter and destruction of nearly 500 head of cattle in the new foot-and-mouth disease outbreak near Vera Cruz.

This newly discovered infection will probably mean the U. S.-Mexican border will remain closed to nearly all livestock and meat commerce for at least a year, even if no further evidence of foot-and-mouth, also called aftosa, is detected.

The border was only reopened last September, after being shut tight since the great aftosa outbreak beginning 1946, in which thousands of animals were eradicated and about \$160,000,000 spent by a joint commission of U. S. and Mexican scientists and technicians to wipe out the disease.

The new aftosa outbreak was called to the attention of Dr. D. F. Werring, acting co-director of the Mexican-U. S. Commission for the Prevention of Foot-and-Mouth Disease in Mexico, by the Cattlemen's Association of Vera Cruz on May 21.

The commission immediately collected materials for serological tests of the suspected animals, and on Saturday, May 23, presence of the disease was verified from the laboratory. Authorities of the U. S. Bureau of Animal Industry in Washington were noti-

fied by phone. In a matter of hours Secretary of Agriculture Benson had signed an order closing the border to further importation of all cattle, sheep and other ruminants, and unprocessed meat of those animals from Mexico.

Meanwhile in Mexico, the exposed or infected cattle, numbering from 450 to 500 head, were ruthlessly slaughtered and their remains buried. No further infections have been detected, and authorities are optimistic that the outbreak has been halted at its source.

The last known outbreak of aftosa in Mexico occurred in August, 1951, in the state of Vera Cruz. A policy of eradication of all animals involved quickly ended the trouble, and a year later the border was opened to traffic of cattle, sheep and other ruminants. Since September, 1952, 250,000 head of cattle have come from Mexico into the United States. None of them, however, is believed to have come from Vera Cruz, site of the latest infection.

Science News Letter, June 13, 1953

When an experimental animal is chilled so that its body chemistry slows down, the animal can take several times the normally damaging dose of X-rays without great injury.

SURGERY

Operation Advised for "Cotton-Candy" Lung

► **ENCOURAGING RESULTS** with a surgical treatment for "cotton-candy lung" were reported by Drs. Gerald L. Crenshaw and Donald F. Rowles of Oakland, Calif., at the meeting of the American College of Chest Physicians in New York.

"Cotton-candy lung" describes the X-ray appearance of degenerated lungs. The condition occurs chiefly in older persons, begins insidiously and is characterized by progressive difficulty in breathing, weakness and blue skin color. Patients are often extremely thin and are comfortable only when at rest.

The condition arises because of a slowly progressive inflammation and obliteration of blood vessels in both circulatory systems of the lungs.

In addition to medical treatment, the Oakland doctors operate to remove the degenerated areas of the lungs, and to cut nerve endings and arrange for a secondary supply of nourishing blood through collateral arteries. This last is an attempt to change the cycle of progressive lung degeneration.

Science News Letter, June 13, 1953



Wins Writing Success Though Crippled With Arthritis

"When I became almost crippled with arthritis, N.I.A. training proved its value. I began acting as local correspondent, then started my own publication. 'The Beekeeper' became a success. I shout the merits of N.I.A. training."—Elmer Carroll, Route 3, Box 540, Lansing, Mich.

To People who want to write but can't get started

DO YOU have that constant urge to write but fear that a beginner hasn't a chance? Here is what the former editor of Liberty said: "There is more room for newcomers in writing than ever before. Some of the greatest of writing men and women have passed from the scene. Who will take their places? Fame, riches and the happiness of achievement await the new men and women of power."

A Chance to Test Yourself—FREE

The Newspaper Institute of America offers a **FREE Writing Aptitude Test**. Its object is to discover more men and women who can add to their income by fiction and article writing. The Writing Aptitude Test is a simple but expert analysis of your latent ability, your powers of imagination, logic, etc. Those who pass this test are qualified to take the famous N.I.A. course based on the practical New York Copy Desk Method which teaches you to write by writing. You work at home, in leisure time, constantly guided by experienced writers. Soon you acquire the coveted "professional" touch. Then you are ready to market your stories, articles and news items.

Mail the Coupon Now

Taking the **FREE Writing Aptitude Test** requires but a few minutes and costs nothing. So mail the coupon now. Take the first step toward the most enjoyable and profitable occupation—writing for publication! Newspaper Institute of America, One Park Ave., New York 18, N. Y. (Founded 1925)

(Licensed by State of N. Y.)

FREE

Newspaper Institute of America
One Park Avenue, New York 18, N. Y.

Send me, without cost or obligation, your Writing Aptitude Test and further information about writing for profit as promised in Science News Letter, June 13.

Miss }
Mrs. }
Mr. }

Address

City Zone State
(All correspondence confidential. No salesman will call on you.) 117-H-783

☐ Check if Veteran.

Copyright 1953 Newspaper Institute of America

• New Machines and Gadgets •

For addresses where you can get more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N ST., Washington 6, D. C., and ask for Gadget Bulletin 478. To receive this Gadget Bulletin without special request each week, remit \$1.50 for one year's subscription.

* **THERMAL BAG** holds enough food or beverages for six picnic lunches. Resembling an overnight bag, the leak-proof container has a colorful plaid finish and zips closed. It is insulated inside by an inch-thick layer of glass fibers.

Science News Letter, June 13, 1953

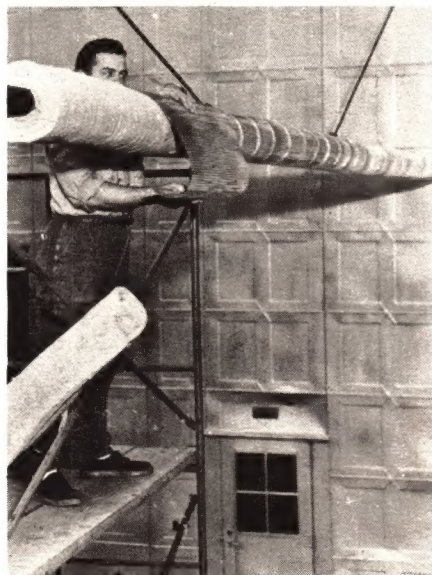
* **TYPEWRITER PAD** is made of "anti-fatigue" rubber matting with an easy-to-clean corrugated surface wedged to a non-skid sponge rubber base. The pad reduces noise and vibration of office machines, stops "walking" of machines and is said to last for years without losing its resiliency.

Science News Letter, June 13, 1953

* **SPRAYS FOR** furniture and plastic auto seat covers cuts down static electricity which attracts dust to furniture after wiping and which produces tingling "shocks" when you touch the car's door handle. The spray is dispensed in push-button aerosol cans.

Science News Letter, June 13, 1953

* **WRAP AROUND INSULATION** for pipes is three-quarter-inch thick and comes in 100-foot rolls, 36 inches wide. Easily cut, the material, shown in the photograph, can be used on pipes where temperatures range from sub-zero to 600 degrees Fahrenheit.



It is held in place with staples, adhesives or cords, and is jacketed in roofing felt, white asbestos paper-faced felt or thin sheets of metal.

Science News Letter, June 13, 1953

* **LIQUID FIXING** solution for the dark-rooms of portrait, commercial, industrial and press photographers is said to have a 50%

greater working life and fixing speed than conventional powder fixers. The liquid concentrate comes in a disposable five-gallon lacquered steel pail with a chemically inert liner and retractable pouring spout.

Science News Letter, June 13, 1953

* **CLEANING POWDER** can be used to remove "bug splatter" from automobiles which, if not removed promptly, may harm the finish of paint and chrome. The powder also cleans windshields and headlights.

Science News Letter, June 13, 1953

* **METAL TONGS** equipped with flexible rubber grips handle any article in boiling water and reduce chances that the user will receive dangerous burns. Especially good to use when sterilizing baby bottles, the tongs have a spring-steel handle coated with heat-resisting enamel.

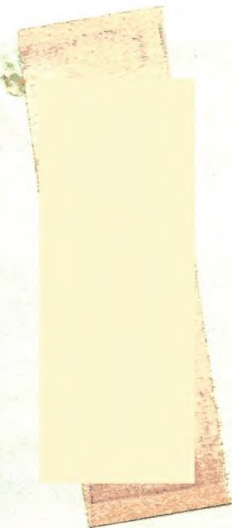
Science News Letter, June 13, 1953

* **NEW SUNGLASSES**, requested by the armed forces in 1947, now are available to the public. Made of a neutral-gray optical glass, the lenses screen out most of the glare in sunlight, but do not alter color values seen through them.

Science News Letter, June 13, 1953

We wish to serve you—

LET US ORDER YOUR BOOK



Don't Delay

getting that NEW BOOK you want to read. SCIENCE NEWS LETTER will gladly obtain for you any American book or magazine in print. Send check or money order covering regular retail price (\$5 if price is unknown and adjustment will be made). We will pay postage in the United States. You can attach a separate sheet, to your address coupon at left, listing title, author, publisher, price, and mail to Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C.

Do You Know?

The white *rhinoceros*, once believed nearly extinct, is increasing in numbers in Uganda.

An infant should wear *shoes* as soon as he toddles about to any considerable extent outside the playpen.

Newsprint manufactured entirely from sawgrass has been used experimentally for a recent issue of a newspaper in Florida.

Insects seem to prefer white light to yellow; the recommendation is to use yellow lights outdoors where people will gather, putting a white-light lure off to one side to attract the insects.

Botanists are studying the possibility of squirrels carrying the *oak wilt* fungus from diseased to healthy trees.

The *calorie*, which dieting persons watch so closely, is the amount of heat required to raise the temperature of one gram of water one degree Centigrade.